2020 Census 10. Paper Data Capture (PDC) – Detailed Integrated Business Process Model

Version: 4.01

Revision Date: October 24, 2019

United States Census Bureau

Facilitation & Analysis: Yelena Oleynikova
Model Preparation: Joni Southard
Subject Matter Experts: Joni Southard, Julie Beyer, Jennifer Morse, Jennifer Simpson

Table of Contents

Reading and Understanding the Model
Legend . . . 2
Context Model . . . 3
02 Perform Planning, Preparation, and Testing . . . 4
02.05 Conduct Forms Testing and Configuration . . . 5
02.06 Conduct Testing of Printed Samples . . . 6
02.07 Conduct Sorter Configuration . . . 7
08 Prepare for and Track Mail . . . 8
09 Receive Initial Universe and Manage Updates . . . 9
11 Receive Mail and Boxes . . . 10
15 Check-in and Sort Mail and Boxes . . . 11
15.50 Check-in Boxes (ETL, GQ, UE) and MV Enumeration Materials . . . 12
40 Prepare Document for Scanning . . . 13
50 Scan Documents . . . 14
60 Conduct Image Processing . . . 15
60.70 Exception Review . . . 16
70 Recognize Responses . . . 17
80 Conduct PDC QA . . . 18
85 Translate Response Data . . . 19
90 Distribute Response Data . . . 20
110 Conduct Independent QA (PDQ) . . . 21
120 Destroy Documents . . . 22

Major Revision Change History

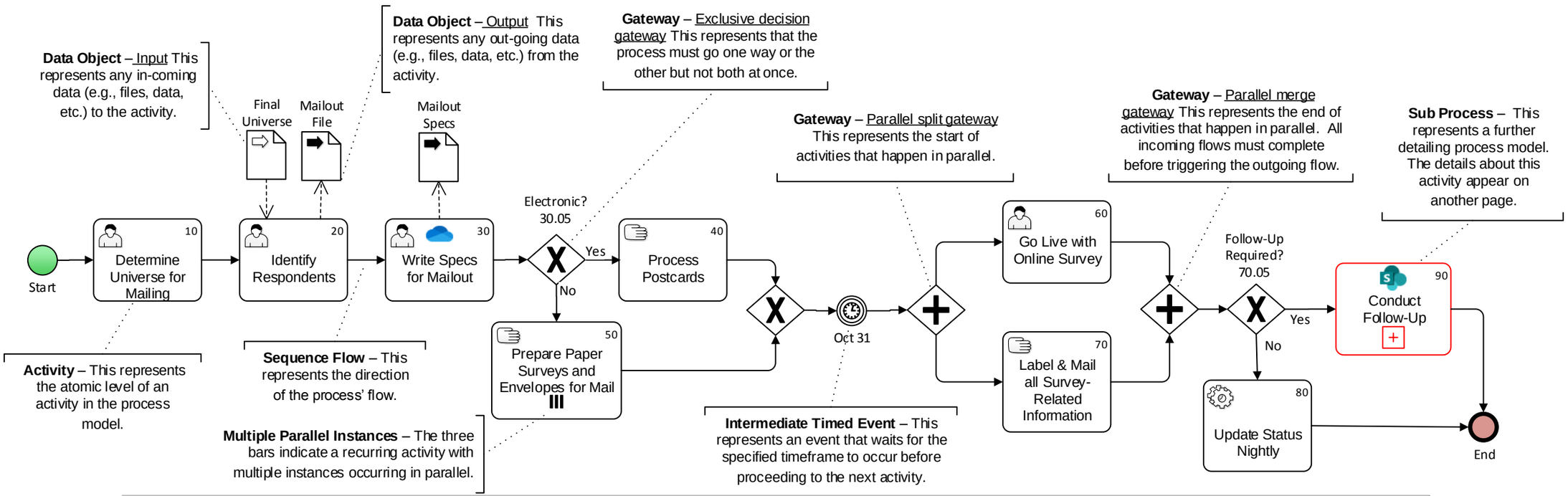
Date	Description	Author	Version #	Page #'s
06/09/2017	Baseline	Rosalyn Thomas	1.0	All
07/19/2017	Document Updates Updated activity numbers on page 10.	Rosalyn Thomas	1.1	All
07/31/2017	Updated page 6 & based on Customer Feedback. Change box header on page 7.	Rosalyn Thomas	1.2	6 & 7
09/06/2017	Updated several pages based on comments from PDC Stakeholders.	Rosalyn Thomas	1.3	7,9,10,11 13,14,17
10/13/2017	Updated several pages based on comments from PDC stakeholders	Rosalyn Thomas	1.4	11,,12,13 14,18,21
11/09/2017	Updated pages based on comments dated 10/19/2017.	Rosalyn Thomas	1.5	21,16,5
04/20/2018	Provided more solution level detail	Rosalyn Thomas	2.0	All
04/30/2018	General Cleanup	Rosalyn Thomas	2.1	All
05/11/2018	Updated based on meeting with NPC	Rosalyn Thomas	2.2	1-11
05/14/2018	Hand over to NPC to update	Joni Krohn	2.3	
09/18/2018	Updates based on PDC Operation SMEs	Alex Spire	2.4	All
10/26/2018	Updates based on PDC Operation SMEs	Chidinma Oyedokun	2.5	8,12,18,30
11/02/2018	Updates based on PDC Operation SMEs	Chidinma Oyedokun	2.6	All
11/05/2018	General Cleanup	Chidinma Oyedokun	2.7	All
11/06/2018	General Cleanup	Chidinma Oyedokun	2.8	All
01/08/2019	Pages rearranged based on DOP Suggestions; pages renumbered and general cleanup.	Chidinma Oyedokun	2.9	All
03/7/2019	Updates based on PDC Operation SMEs Clarifications, Minor Cleanup	MITRE	2.10	1-20
3/27/2019	BPM Updates based on Notes	Y. Ramirez	2.11	All
4/4/2019	MITRE Updates	Y. Ramirez	2.12	6, 12, 14-16, 31
4/10/2019	Updates from DOP meeting	S. Alexander	2.13	1, 5, 6, 9, 25
4/26/2019	Updates from DOP meeting and review	S. Alexander	2.14	1, 2, 3, 6, 7,
5/03/2019	Updates from DOP meeting notes and IPT	S. Alexander	2.15	1,3, 8, 9,12,16,
5/10/2019	Minor updates	S. Alexander	2.16	3, 6, 5
5/13/2019	Updates to pages behind the separator	S. Alexander	2.17	All
5/17/2019	Updates from 5/15/2019	S. Alexander	2.18	All
5/29/2019	Preparation for 5/30/2019 meeting	S. Alexander	2.19	All
6/03/2019	Updates after 5/30/2019 meeting	S. Alexander	2.20	All
6/04/2019	Updates after 5/30/2019 meeting	S. Alexander	2.21	
6/05/2019	Updates after SME review	S. Alexander	2.22	
06/14/2019	Updates to context model and activities	S. Alexander	2.23	3 -22
06/18/2019	Updates to context model and activities	S. Alexander	2.24	All
07/08/2019	Updates per impacts to CR1107	S. Alexander	2.25	12, 22
07/10/2019	Baseline version from CR1107	S. Alexander	3.0	1
08/30/2019	Impact from CR1077-transcription inserted check-in activities from GQ-MVE	S. Alexander	4.0	1, 4, 12
	Impacts from CRs1041 CR1321 version 4.0	S. Alexander	4.0	1, 3, 8,13,17,18,22
9/19/2019	Updates from Impacts at 9/19/2019 CCB meeting			
9/27/2019	Updates to Annotation Layer, alignment & text overlap readability adjustments	K.Harmon	4.0	1, 11, 12, 21
10/24/2019	CR1398, Preserve Image for archiving and research	Lena Oleynikova	4.01	14

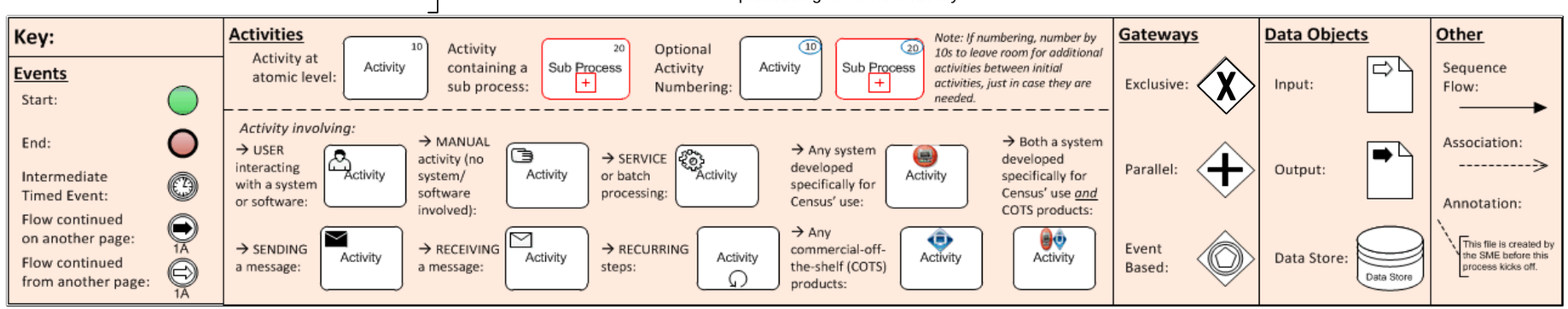
Reading and Understanding the Model

Example Activity Model

BPM Purpose

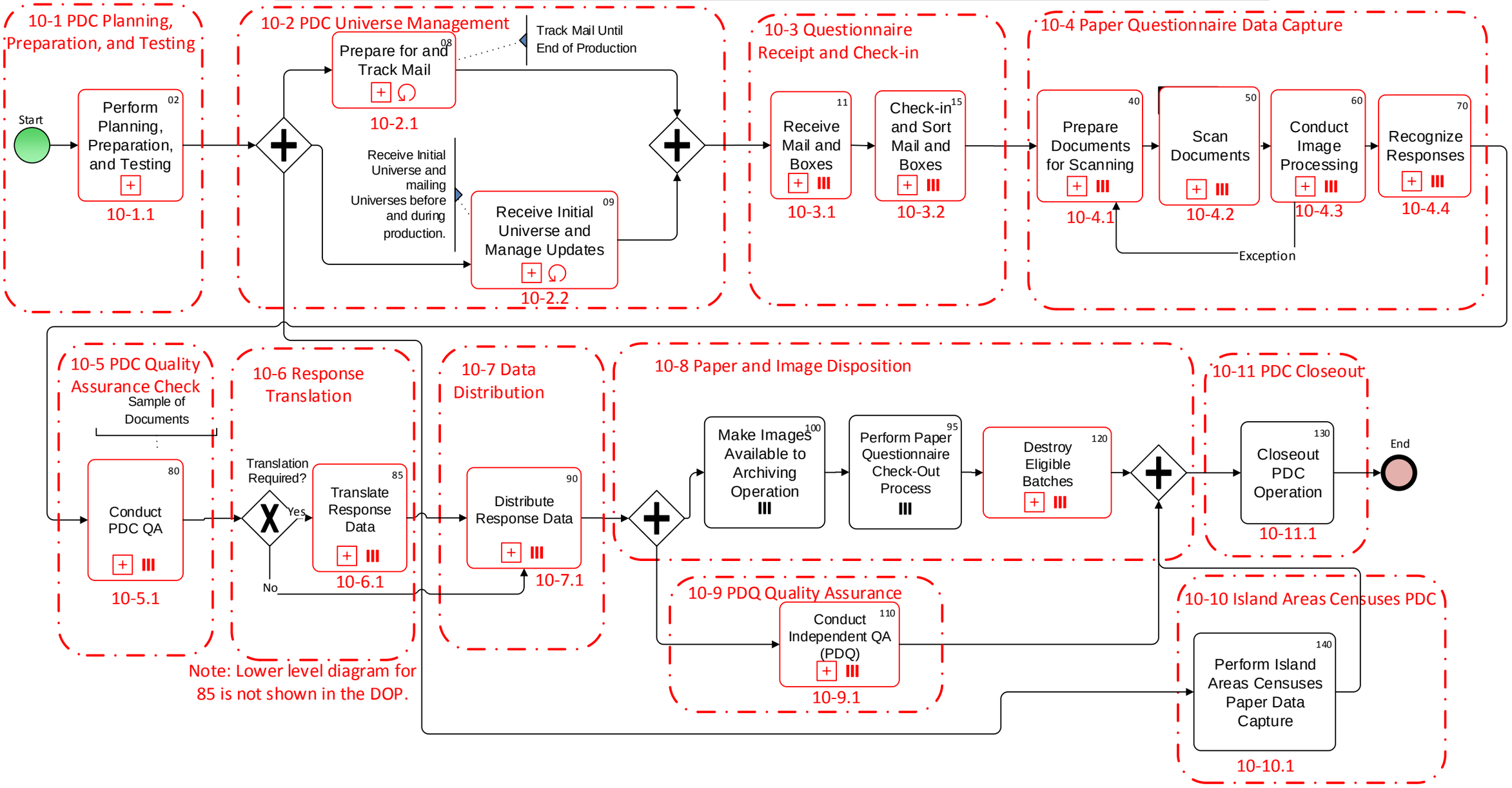
- Describe Census Operations business processes – activities, resources and key milestones.
- Provide the details necessary for non-subject matter experts to understand the business process.
- Contribute to the requirements development process.
- Facilitate the linkage of business processes to IT capabilities.
- Capture Operations inputs and outputs.





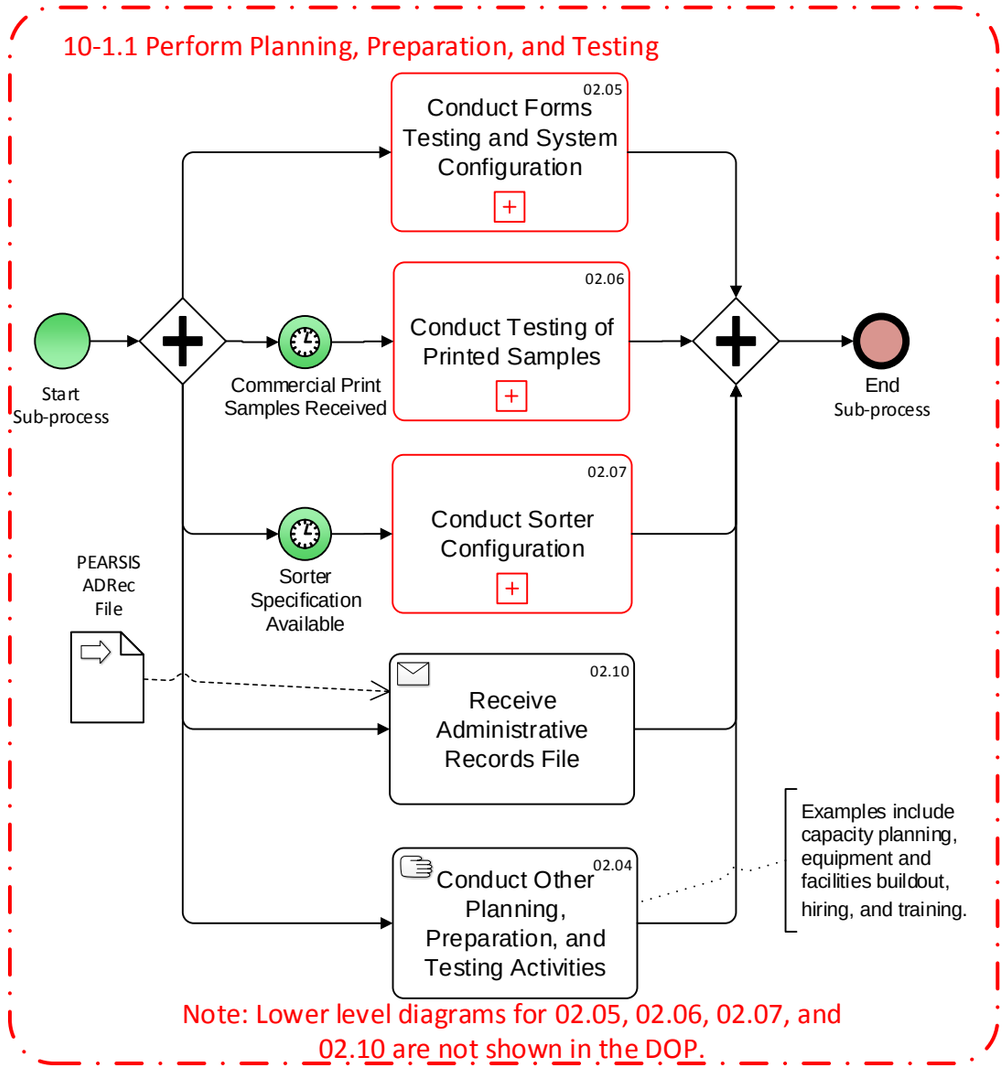
2020 Census 10. Paper Data Capture Operation (PDC)

Purpose: Capture and convert data from the 2020 Census paper questionnaires, including document preparation, scanning, optical character recognition, optical mark recognition, key from image, quality assurance, and checkout.



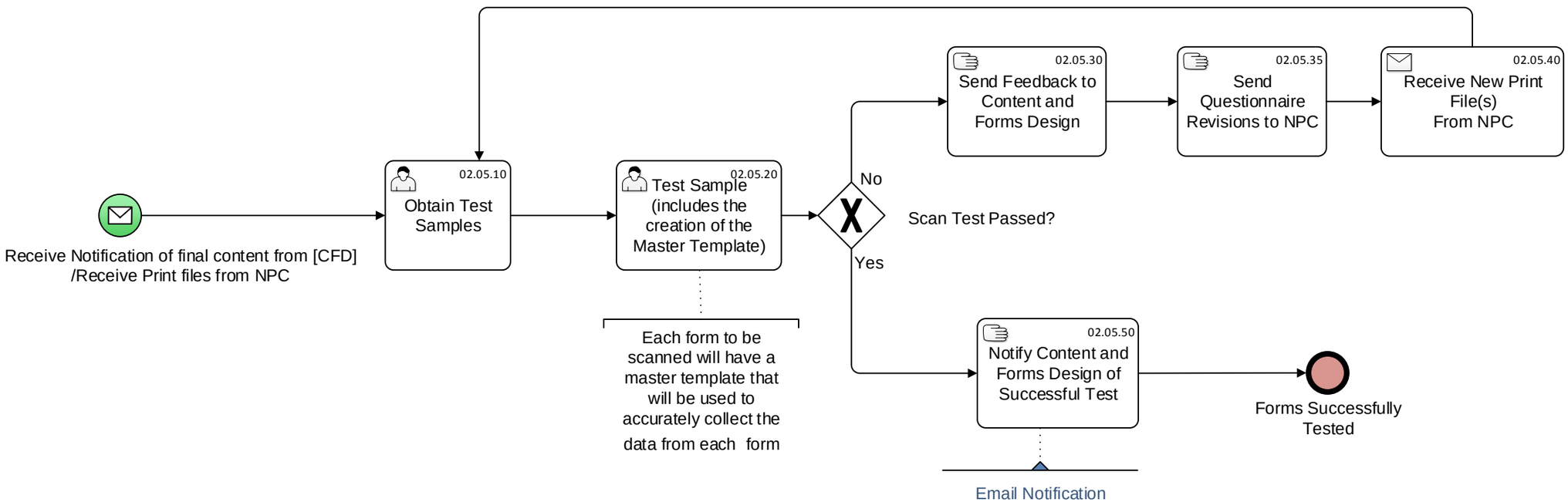
02 Perform Planning, Preparation, and Testing

Purpose: Perform activities needed to plan and prepare for production, including all testing and configuration activities, as well as receipt of the administrative records data.



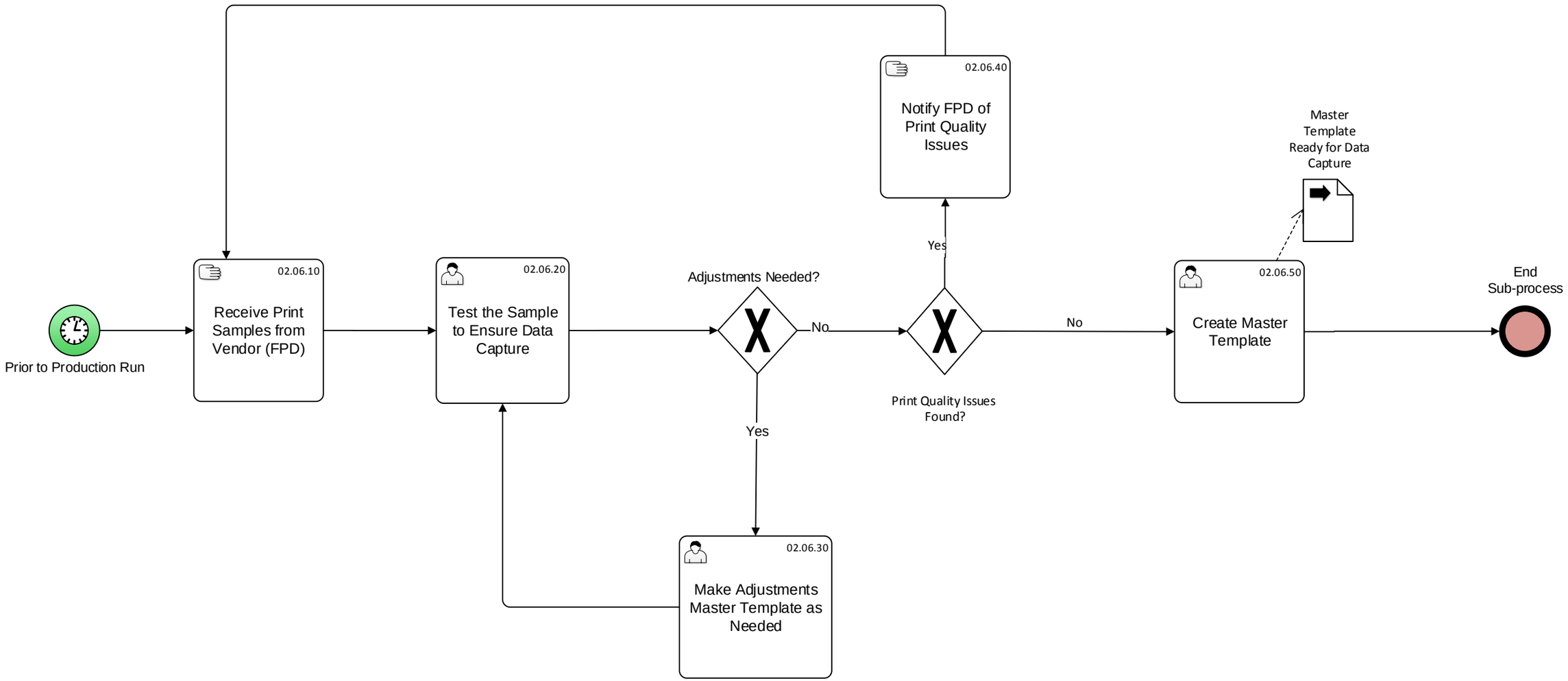
02.05 Conduct Forms Testing and System Configuration

Purpose: The model below depicts the steps involved in testing the print file provided by Content & Forms Design (CFD). The process is conducted to ensure that forms are scanned and that data can be accurately and reliably collected from the forms.



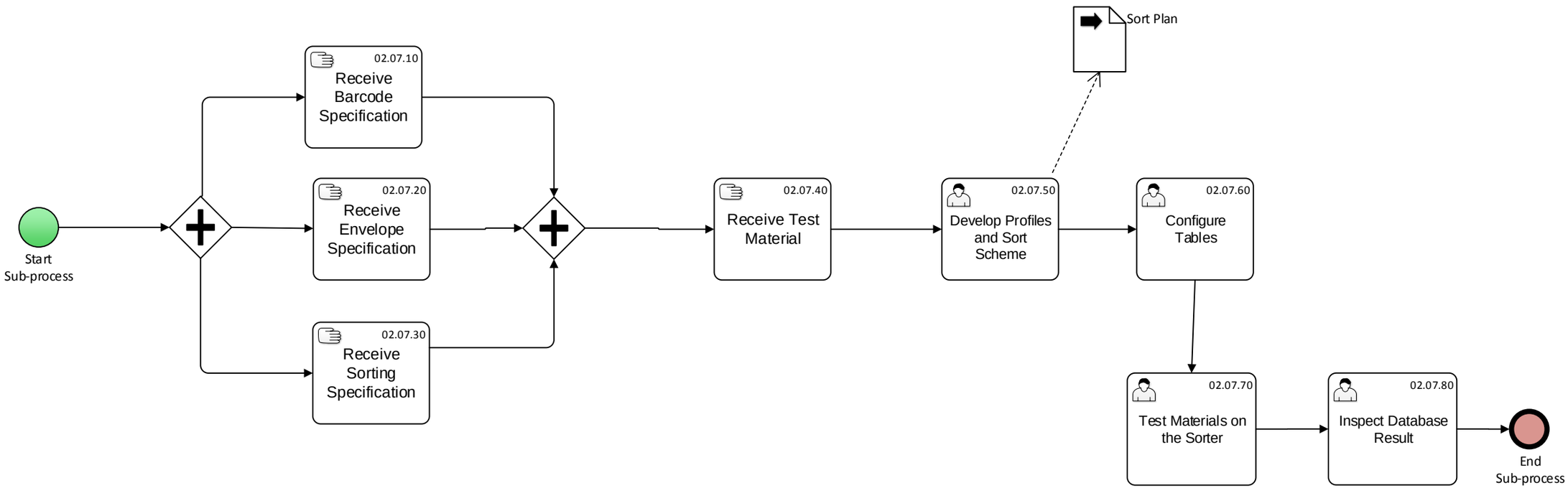
02.06 Conduct Testing of Printed Samples

Purpose: The model depicts the testing of forms printed by the print vendor or NPC prior to, or as a part of the production run for a mailing. This process is performed as a quality check to create and validate a Master Template for each form based upon samples received from the vendor. The process is complete when an acceptable Master Template is created.



02.07 Conduct Sorter Configuration

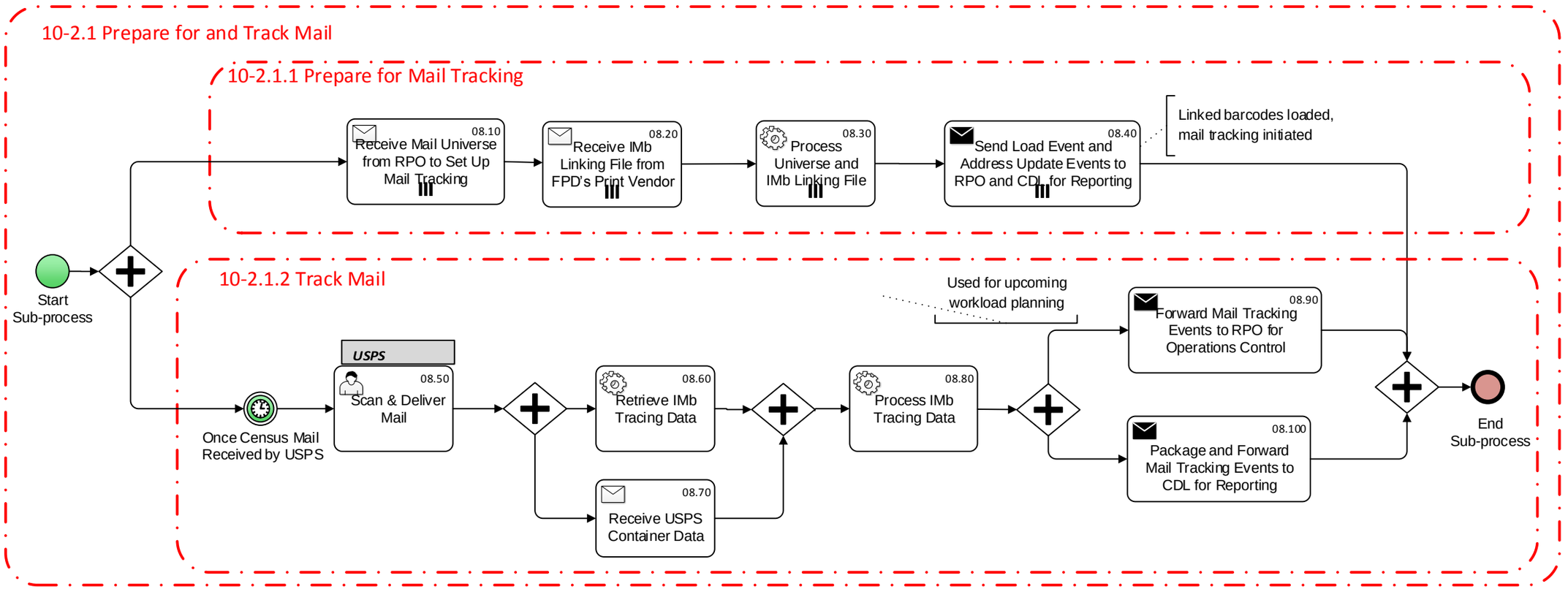
Purpose: To be in accordance with PDCC needs/requirements to process incoming mail.



08 Prepare for and Track Mail

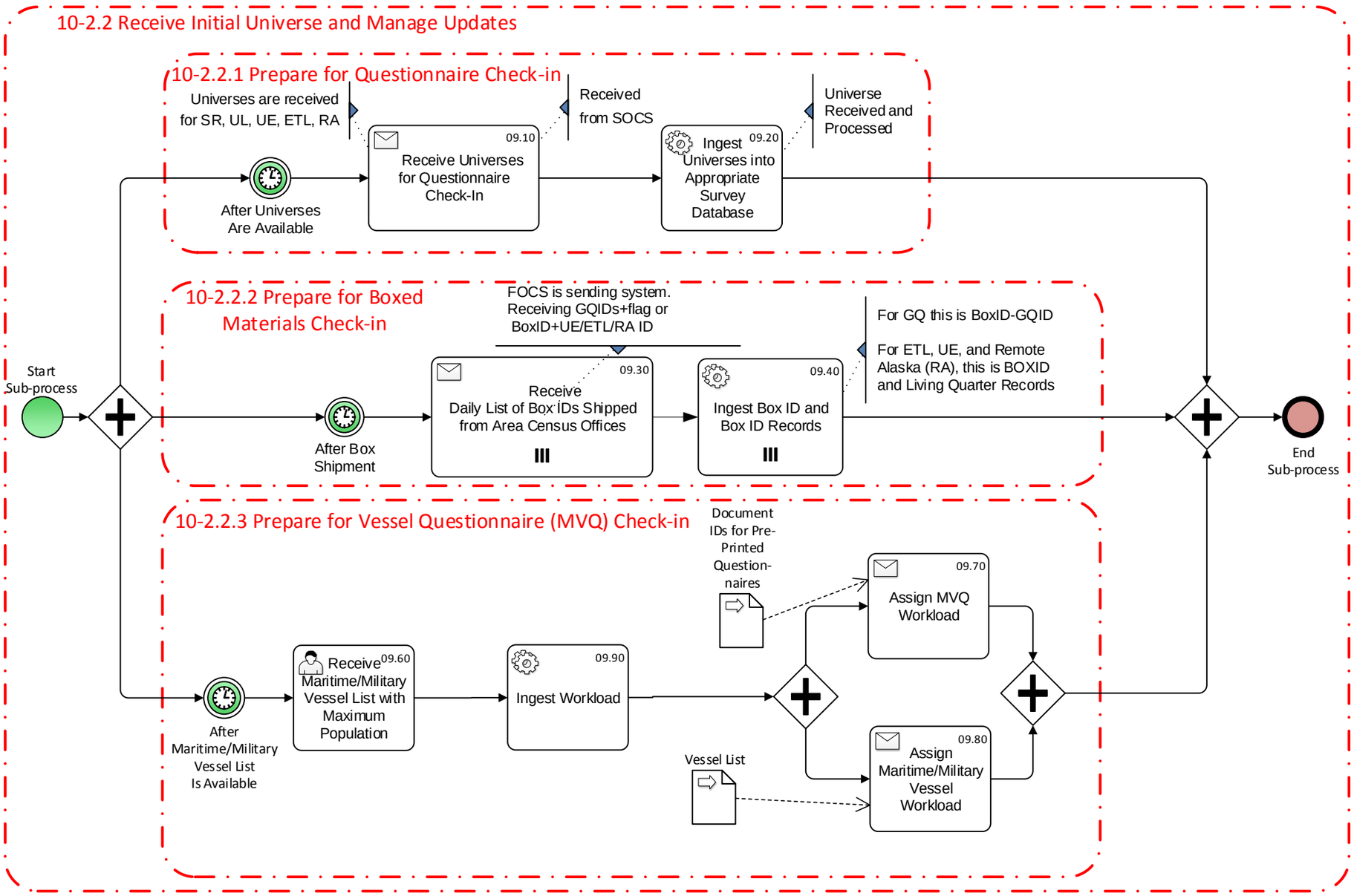
Purpose: To prepare for mail tracking and to receive and process USPS Intelligent Mail barcode (IMb) tracing data for all 2020 Census USPS mail. The data are sent to operations control for workload management and are also sent to reporting.

IPTSv2 SLA: Provide mail tracking data to operations control (ECaSE SOCS) within 24 hours of receipt from the USPS.



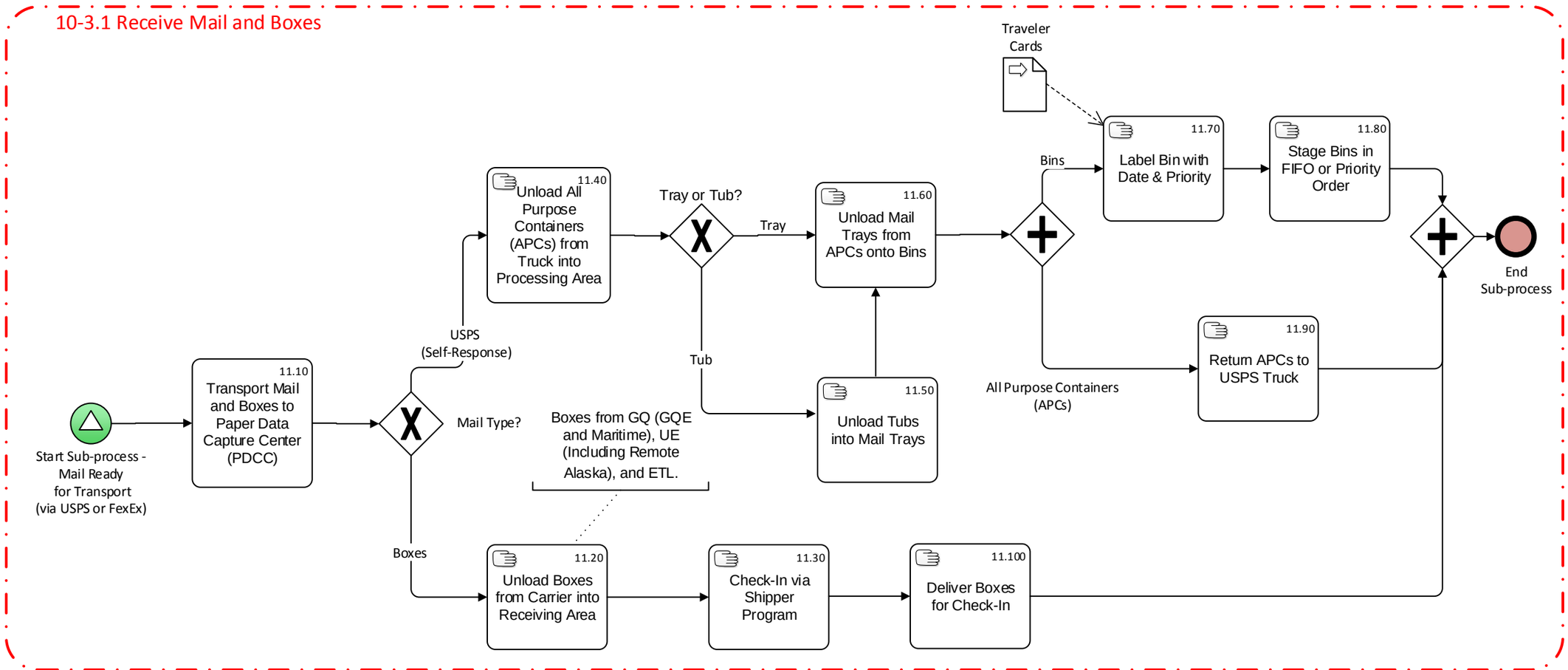
09 Receive Initial Universe and Manage Updates

Purpose: To receive mail universes from operations control, prepare for check-in process, and manage updates to the universe of paper forms that may arrive for processing.



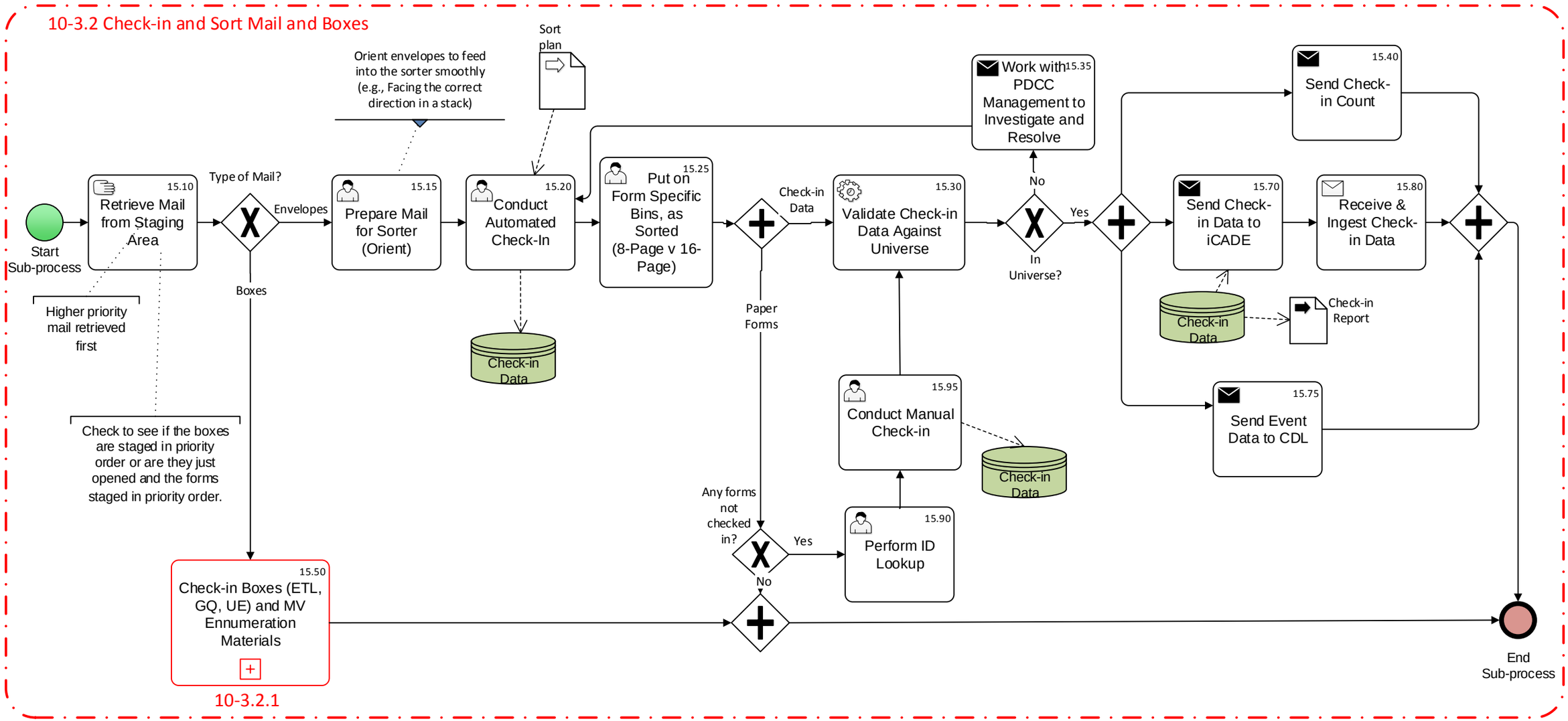
11 Receive Mail and Boxes

Purpose: To receive mail from USPS and boxes from commercial carriers.



15 Check-in and Sort Mail and Boxes

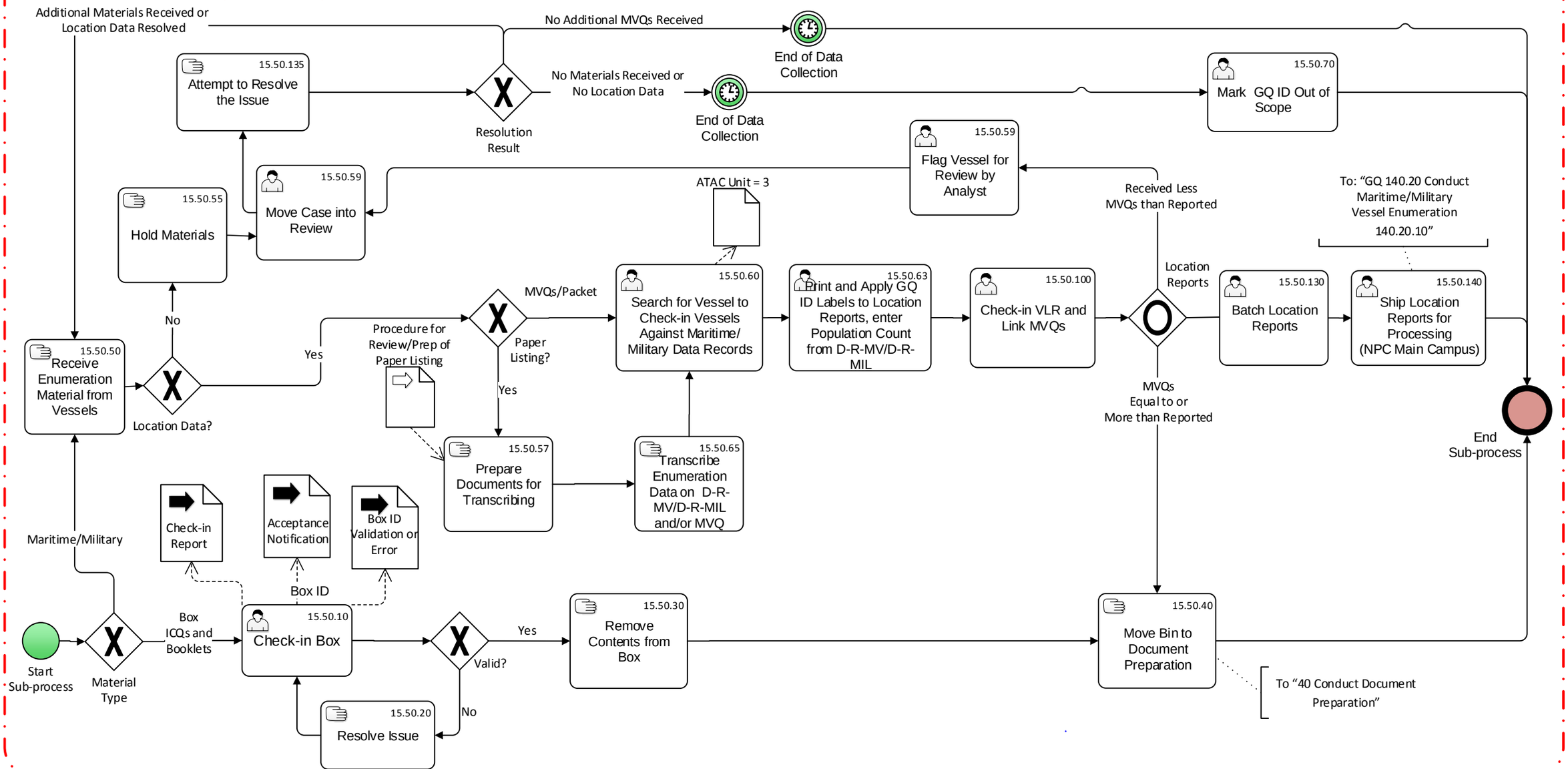
Purpose: To check-in and sort mail and boxes received.



15.50 Check-in Boxes (ETL, GQ, UE) and MV Enumeration Materials

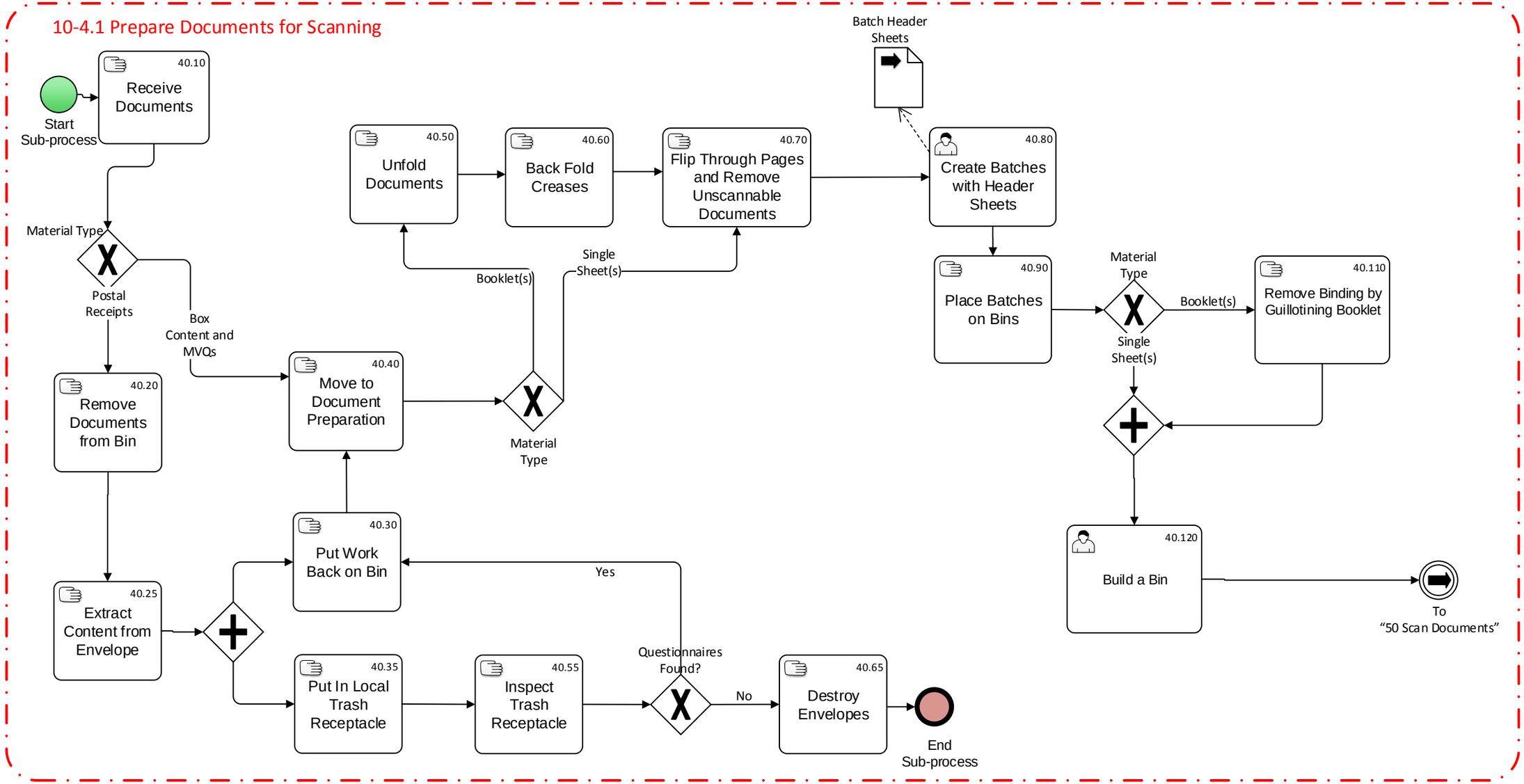
Purpose: To check-in boxes and Maritime vessel enumeration materials from the field and route materials to the next step in processing.

10-3.2.1 Check-in Boxes (ETL, GQ, UE) and MV Enumeration Materials



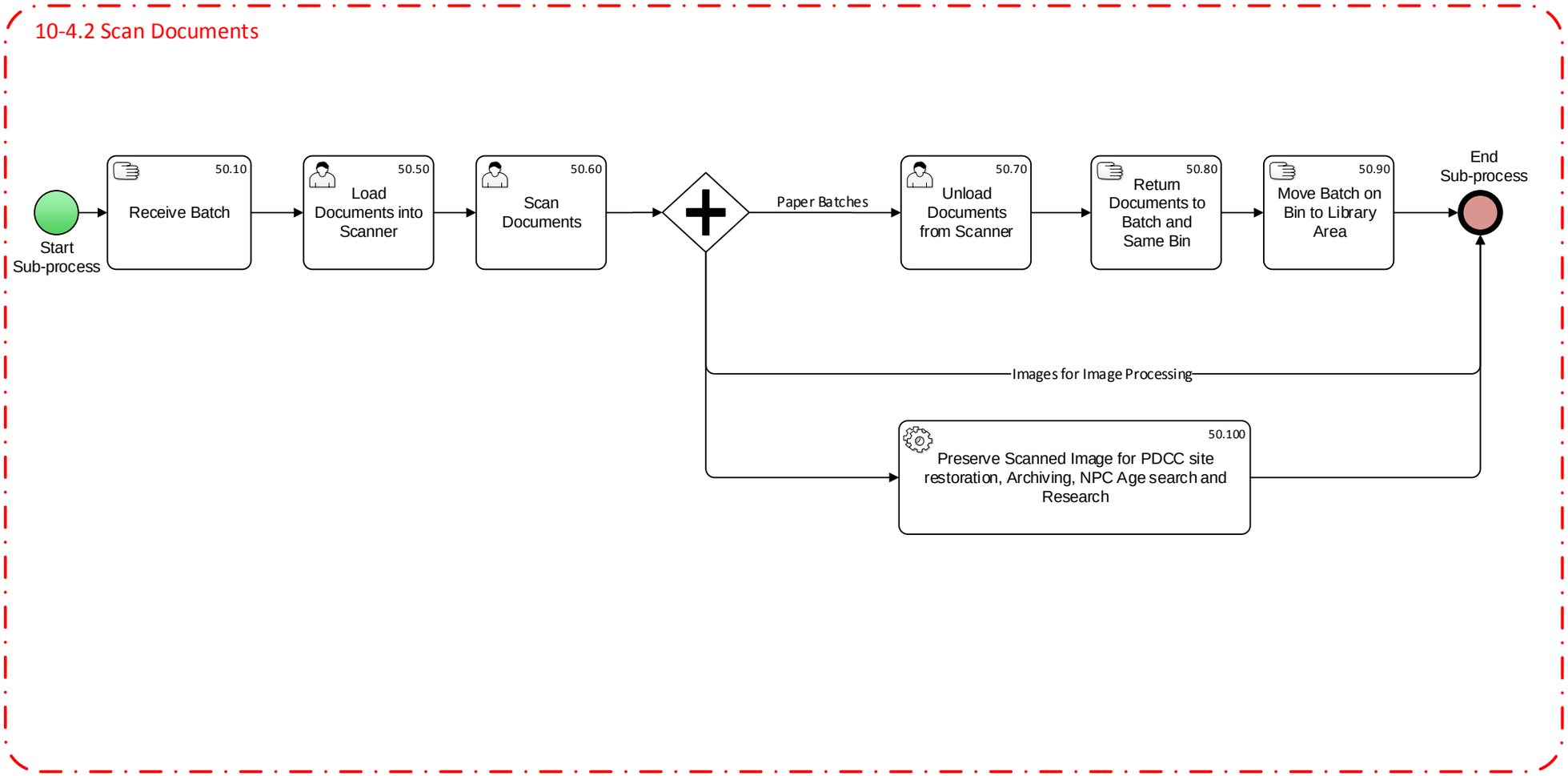
40 Prepare Documents for Scanning

Purpose: To prepare forms for scanning.



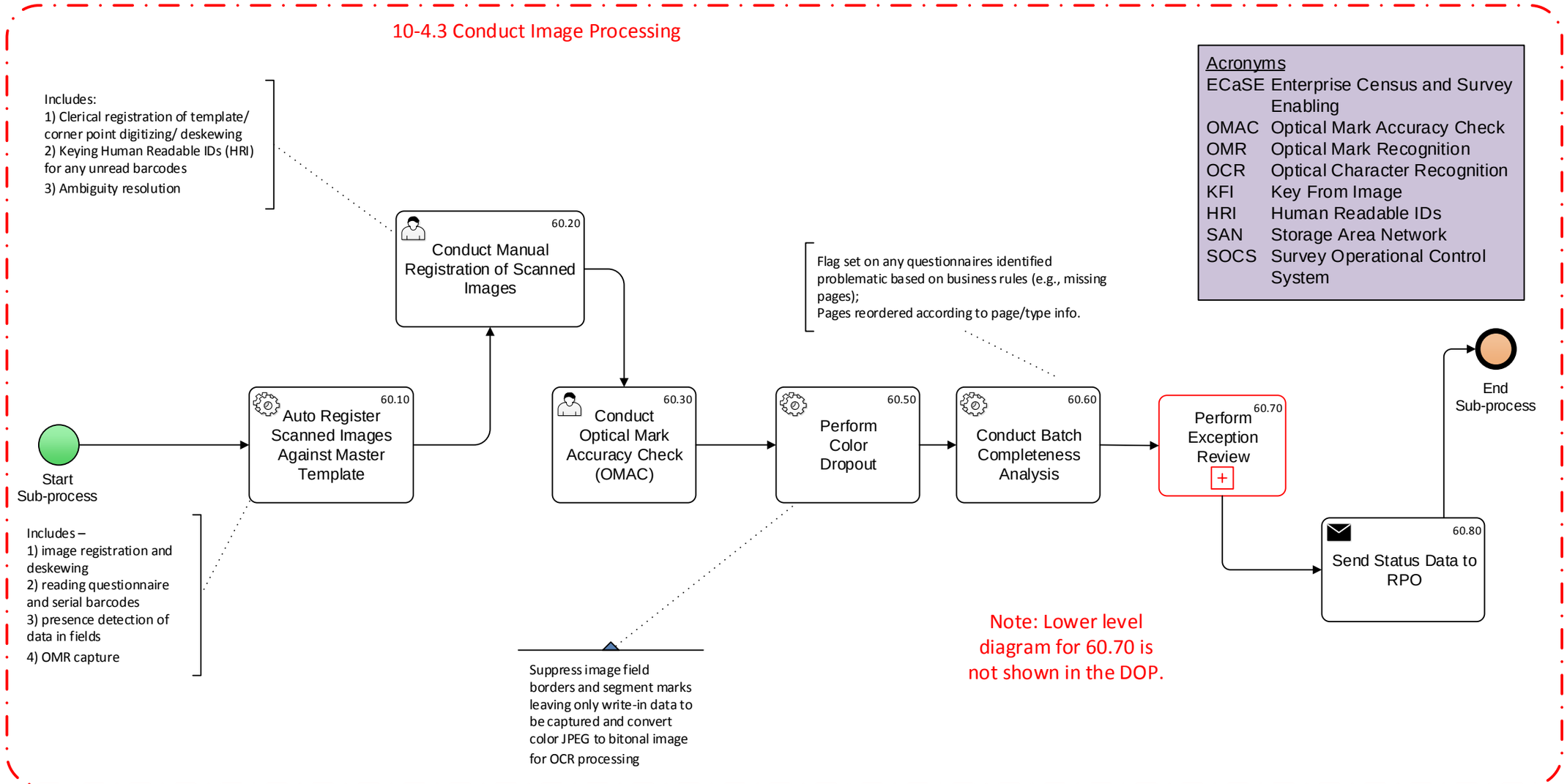
50 Scan Documents

Purpose: To scan and capture images of forms for image processing.



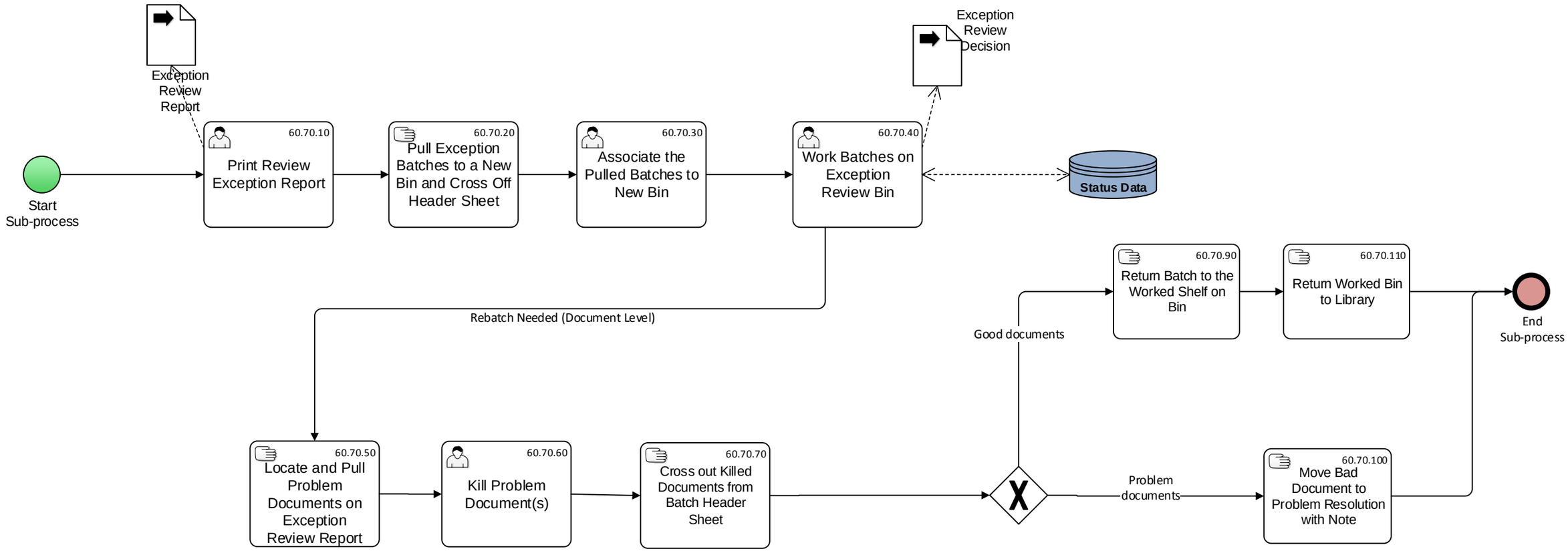
60 Conduct Image Processing

Purpose: To register scanned images, check quality of images, and resolve optical mark recognition (OMR) ambiguities.



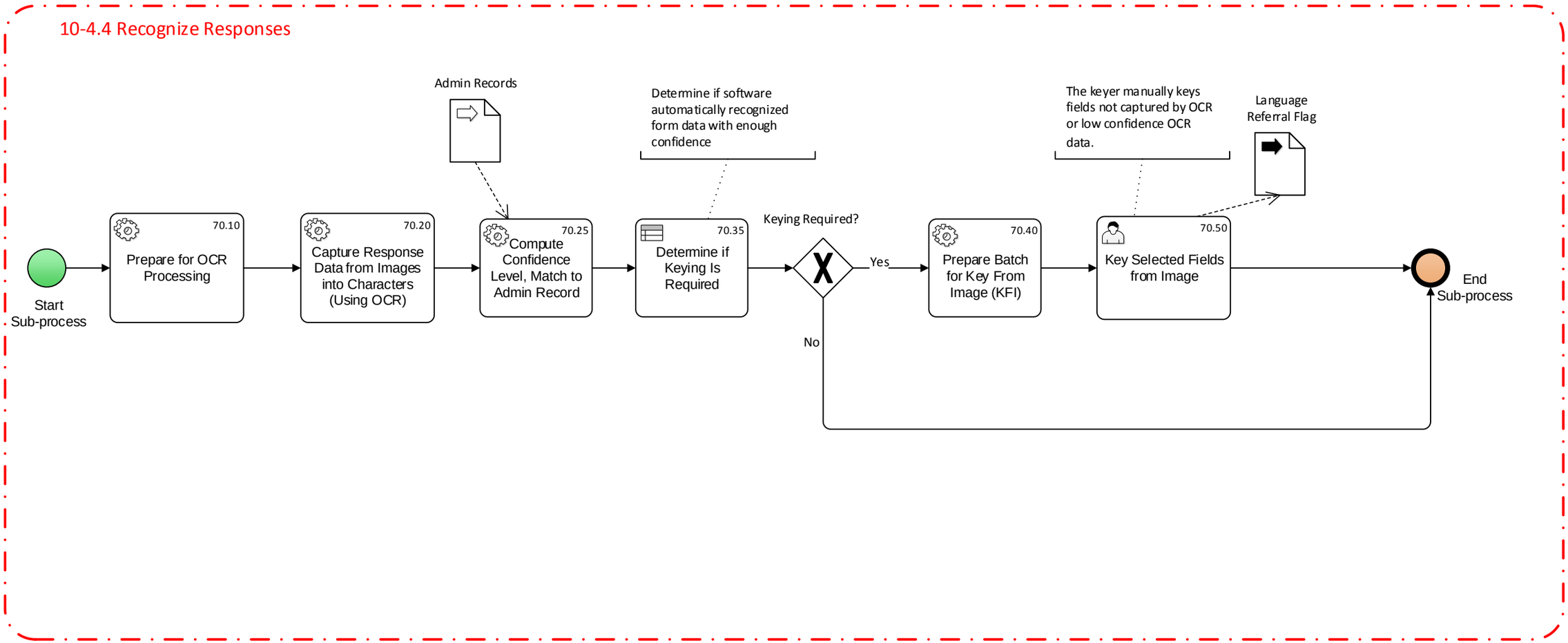
60.70 Perform Exception Review

Purpose: To process exceptions found during the scanning (and other) processes.



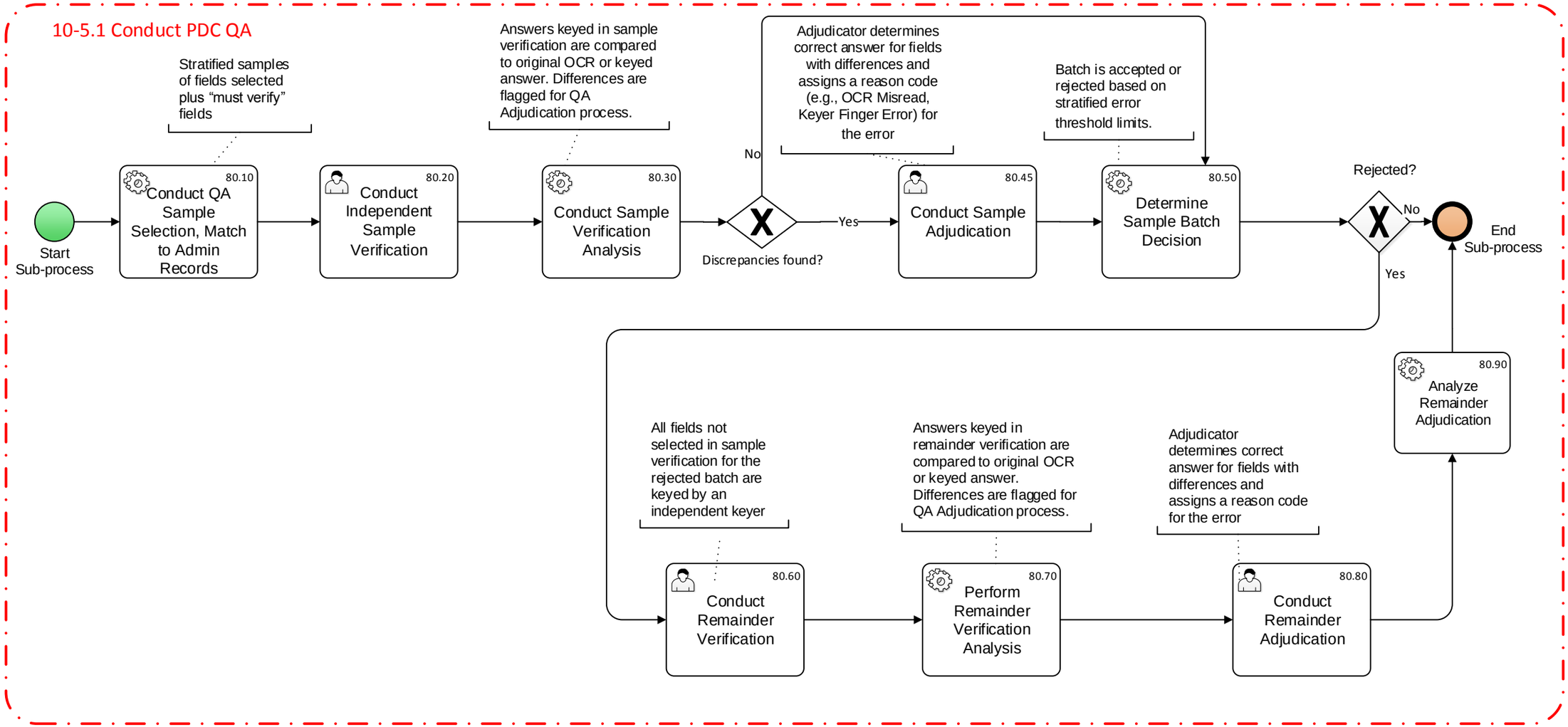
70 Recognize Responses

Purpose: To capture response data from images using optical character recognition (OCR) and key from image (KFI).



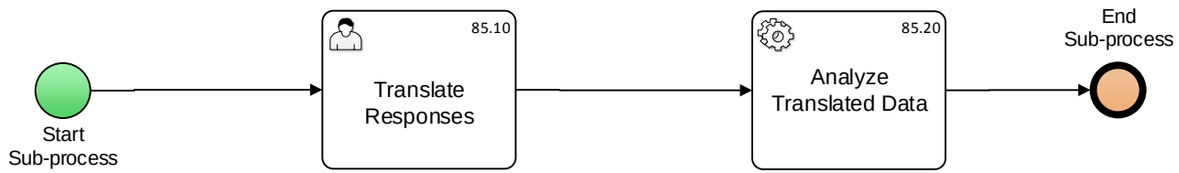
80 Conduct PDC QA

Purpose: To perform quality assurance on recognized or keyed responses.



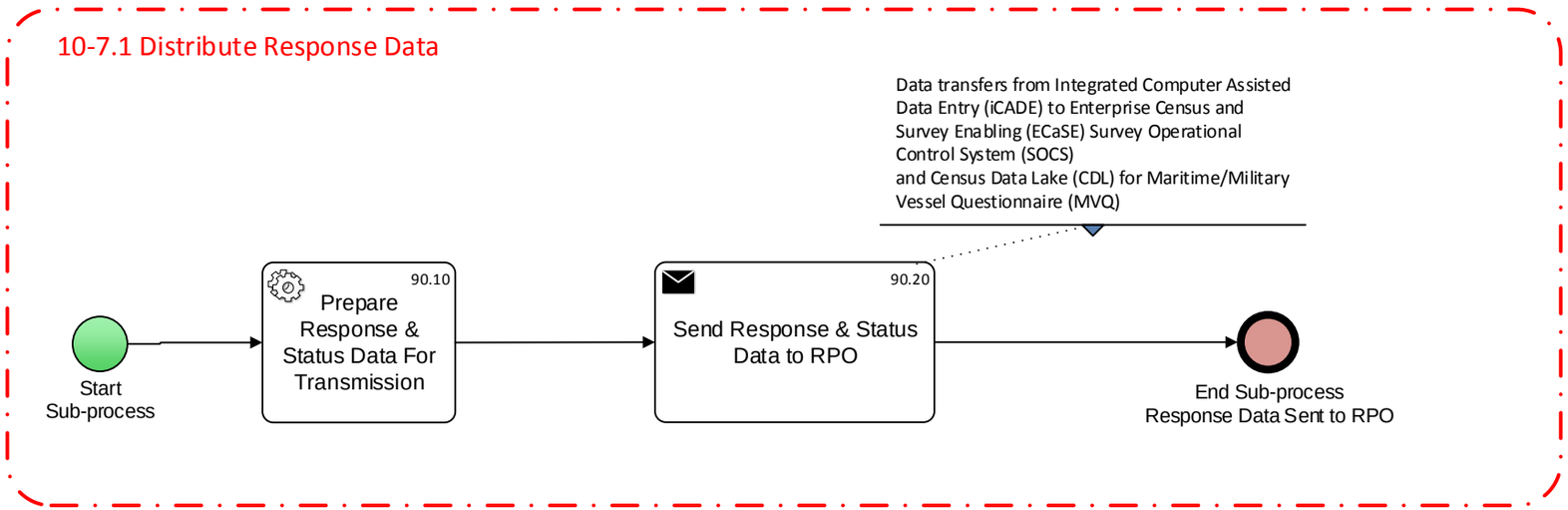
85 Translate Response Data

Purpose: To process language referrals. This process is performed if two specific fields are in a non English and non Spanish language.



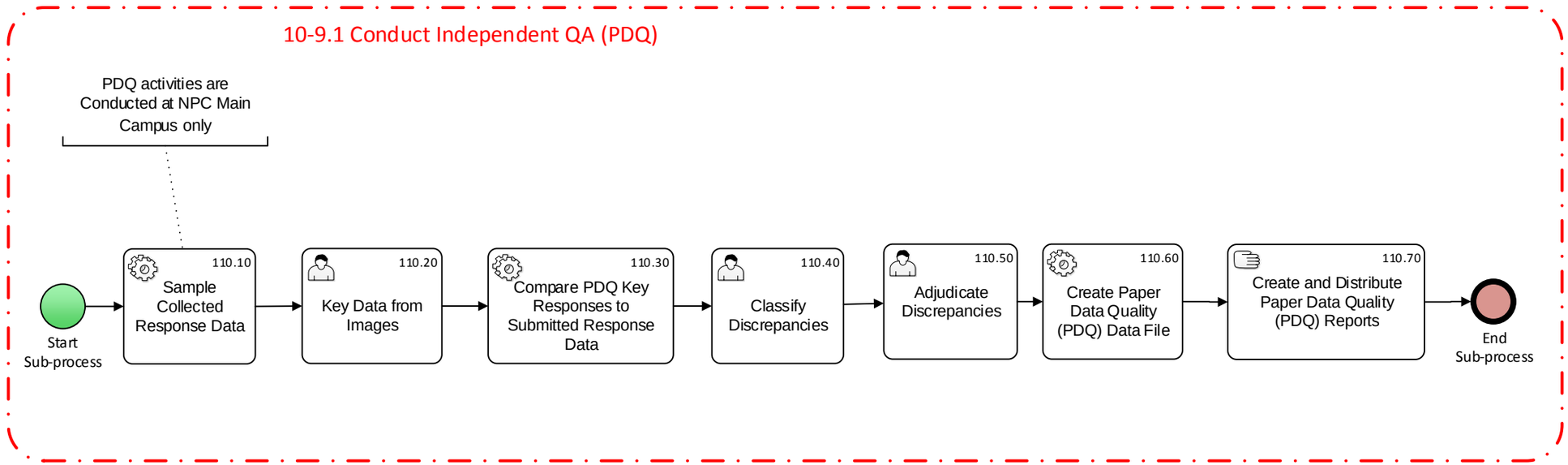
90 Distribute Response Data

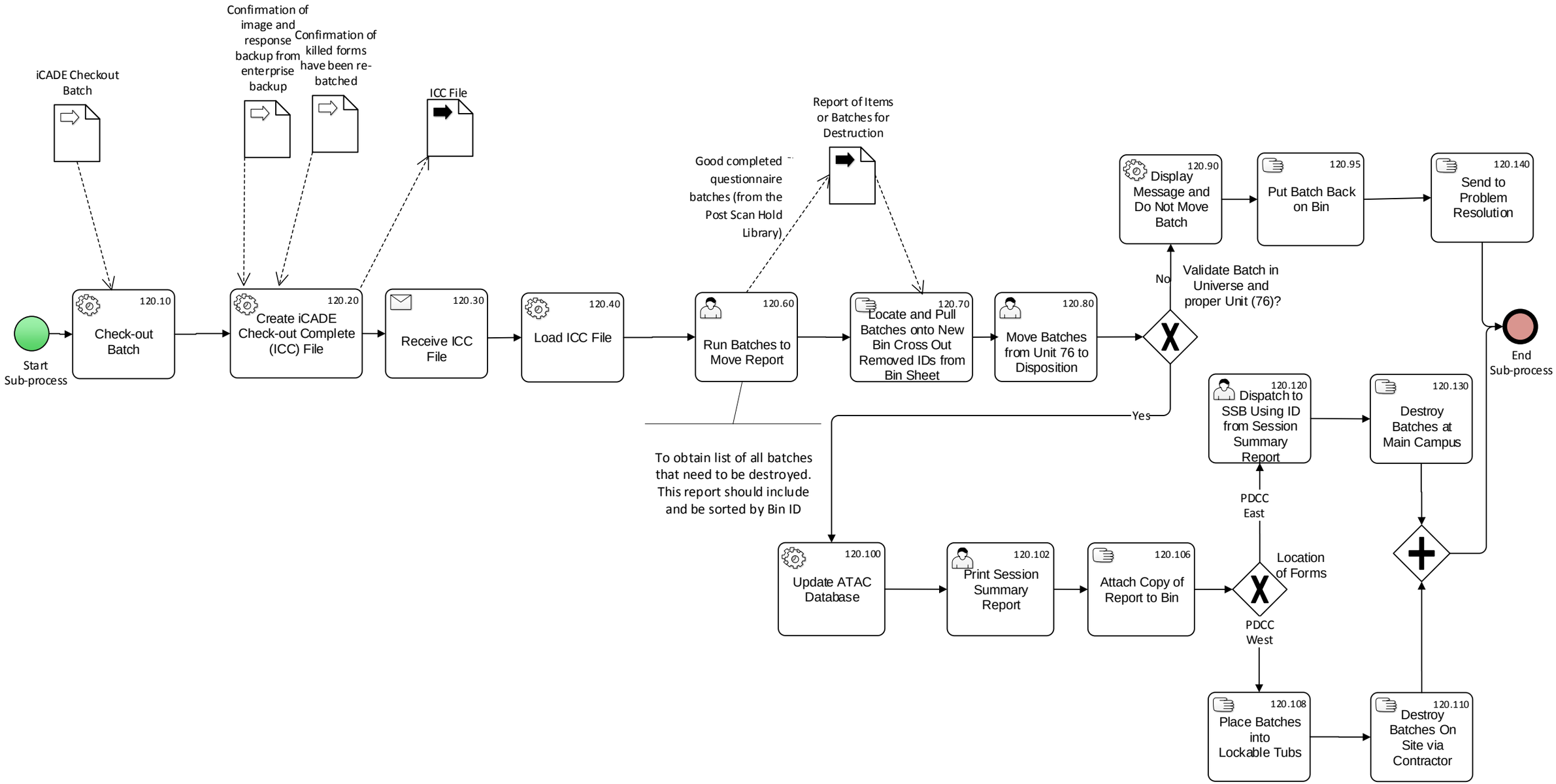
Purpose: To send eligible response data and status data to RPO.



110 Conduct Independent QA (PDQ)

Purpose: To review a samples of all processed questionnaires in order to provide an independent check.



120 Destroy Eligible Batches

Purpose: To destroy batches that have been approved for destruction. The iCADE Check-out Complete File (ICC) contains files checked-out for destruction and is shared with ATAC. No other confirmation of destruction is provided.